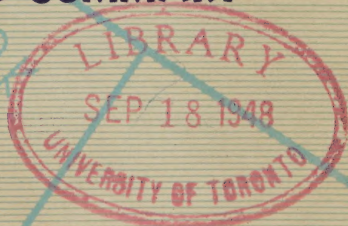


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HUMBER VALLEY CONSERVATION REPORT 1948

RECOMMENDATIONS AND SUMMARY



DEPARTMENT OF PLANNING AND DEVELOPMENT



CA20N
ER 56
- 48478

Department of Planning and Development

HON. DANA PORTER, Minister

A. H. RICHARDSON
Chief Conservation Engineer

Humber Valley Conservation Report 1948

RECOMMENDATIONS
and SUMMARY

TORONTO

Printed and Published by Baptist Johnston, Printer to the King's Most Excellent Majesty
1948

Humber Valley Conservation Authority

Established May 13, 1948

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HUMBER VALLEY REPORT, 1948

RECOMMENDATIONS STATED OR IMPLIED IN THIS REPORT

LAND USE

1. That contour cultivation, restricted rotations and run-off control measures be practised on all agricultural land on slopes up to fifteen per cent to protect against soil erosion; that permanent vegetation be established on all slopes over fifteen per cent.
2. That farm operators avail themselves of professional help in farm planning for soil conservation and improved efficiency of production.
3. That a zone of pasture be established on the southern edge of the interlobate moraine where conditions generally are not favourable to cultivation; that this be established by individual proprietors as well as by a public body acquiring land and leasing to owners of herds.
4. That farm woodlots be protected against grazing and in all other ways managed in accordance with the best forestry practices; that new farm woodlots be created by planting.
5. That permanent ponds and streams of potential use for watering cattle be protected by fencing against filling in and pollution by exclusion of cattle and that their banks be protected by permanent vegetation.
6. That further investigation be made of the location and extent of land suitable for permanent sod cover, of ground water resources, and of the value and means of protecting natural water supplies.

FORESTRY

7. That the Humber Forest of about 20,000 acres lying mainly in Albion Township be established.
8. That all lands designated for natural water storage areas be reforested where necessary; that natural regeneration be encouraged by scientific means wherever possible; that cattle be entirely excluded; and that cutting in both reforested and natural woods be regulated by good forestry practices under supervision of the Authority.
9. That studies be made to determine the best methods of establishing plantations, particularly of hardwoods, on good land and wet areas, to overcome loss from competition by weeds and damage by rodents.
10. That counties, townships and other municipalities be persuaded to establish forests within their boundaries or in the case of towns and cities in the vicinity.

11. That reforestation of privately owned land be encouraged in every way and that an inspection service be established which will record the development of plantations set out on private land.
12. That where small areas on private land form natural water storage areas, either in the form of surface water in swamps or ponds, or underground water which later appears at the surface in the form of springs, these be reforested where there is no forest cover at present, and that all cutting thereon be regulated.
13. That areas covered by zone foresters be reduced so that each can be covered more intensively by technically trained men.
14. That a programme be drawn up and action be taken as soon as possible to combat the invasion of land by hawthorn and wild apple.
15. That schools within the watershed be encouraged to enter the Provincial School Forestry Competition.

WATER

16. That several little dams of simple construction be built for farm ponds and small lakes at selected sites on the upper part of the watershed.
17. That six low dams be built to prevent flooding and to increase summer flow.
18. That encroachments on the natural flood channel of the river be prevented by proper planning.

WILDLIFE

19. That farmers be encouraged to improve their land for wildlife by eliminating the grazing of woodlots, by the planting of game food and cover plots in waste places, gullies and fence corners, and by scooping out hollows for farm ponds in suitable locations.
20. That owners of ponds be encouraged to improve them for ducks, fish, and other wildlife by the introduction of shore cover and aquatic food and cover plants.
21. That farmers be encouraged to control stream erosion and to improve streams for fish by planting alders along stream banks and by placing small dams and deflectors in suitable places.
22. That reforestation programmes be adjusted so that in every area of reforested land, game food and cover plots are established.
23. That if a flood control dam with a permanent lake is established in the watershed, the introduction of warm water pond fish of the bass family be undertaken.
24. That a permanent flow of water must be maintained during the construction of any dam, in order to ensure the survival of the fish and food organisms in the streams below the dam.

25. That steps be taken to reduce the pollution of the Humber River from sewage and industrial wastes.
26. That additional Crown Game Preserves be added to the sole existing one in the watershed, such refuges to be selected from twelve areas listed as particularly suitable.
27. That no change in the status of the marshes near the mouth of the Humber River be considered without advice from the Fish and Wildlife Division of the Provincial Department of Lands and Forests.
28. That the introduction of fish be restricted to those areas which have been shown by the stream survey of 1947 to be satisfactory waters for the particular species to be introduced.

RECREATION

29. That four thousand acres of land in various specified areas be acquired immediately for the development of six multiple use parks in which the following facilities could be provided by the Authority: sports fields; aquatic sports facilities; wading beaches for children; picnic sites; group and individual camping sites; nature trails; ski trails; demonstrations of reforestation, well managed woodlots and erosion control; stream and lake improvements for fish; and an arboretum. These parks would have a total maximum daily capacity of 14,000 people.
30. That forty acres be acquired for the two large roadside parks, one on the new Toronto-Barrie Highway, the other near Mono Mills, which would have a combined capacity of 500 people.
31. That from one to five acres be acquired at each of sixteen picnic sites, which would be equipped with tables and fireplaces. These would have a total capacity of 400 people.
32. That the Conservation Authority establish a set of minimum standards of cleanliness and sanitation to be observed in the operation and maintenance of all picnic grounds or other organized recreation areas in the watershed.
33. That the present legislation concerning the control of pollution from sewage, industrial wastes and garbage in rivers be either enforced or amended so that it can be enforced, in the Humber watershed, in the interests of public health.
34. That the Humber authority give its support to the present plan for an Inner and Outer Green Belt surrounding Toronto.

SUMMARY OF CHAPTERS

PART I—GENERAL

1. LOCATION AND BOUNDARIES: The Humber River, at one time known as the "River of Toronto", flows into Lake Ontario a short distance west of the western limit of the City of Toronto. It drains an irregular area of 336.77 square miles bounded on the North by the watersheds of Holland and Nottawasaga Rivers, on the West by those of the Credit and Etobicoke Rivers and Mimico Creek and on the East by the watersheds of the Rouge and Don Rivers and some small streams which flow through the City of Toronto, mostly below ground. The actual length of the main river from its source to the mouth is more than 50 miles.

The watershed includes almost all the Township of Albion, most of the Townships of King, Vaughan and Toronto Gore, considerable portions of Etobicoke, York, North York and Chinguacousy Townships and small parts of Caledon, Mono and Adjala and Markham Townships. It lies mostly in Peel and York Counties, but includes small parts of Dufferin and Simcoe Counties on the northwest.

2. GEOLOGY AND PHYSIOGRAPHY: The Humber River rises in the limestone hills of Caledon Township and the sandy hills of Albion and King Townships at elevations of 1,400 and 1,500 feet above sea level. The main source streams rise in fairly rugged country, but lower down the river and its branches flow through level or undulating country in deep valleys. The main stream flows over bedrock at Lambton Mills at about 50 feet above the level of Lake Ontario and about two miles before entering the lake.

The topography of the watershed and the drainage pattern of the river system is largely the result of the continental glaciations which have played such a dominant part in the moulding of the landscape of Southern Ontario. Underlying the southern part of Ontario are beds of ancient sedimentary rocks, chiefly limestones and shales, which were deposited in early geological times on the hard, resistant and seemingly immovable rocks of the Canadian Shield. The sedimentary rocks are arranged in such a way that the southern part of the province is divided by a prominent feature, the Niagara Scarp. This ridge, which is so apparent in the Niagara Peninsula and at Hamilton, swings northward from Hamilton towards Collingwood.

It can be said, therefore, that Ontario, west of Kingston, can be divided into three main regions, the Shield, South Central Ontario and Western Ontario. The Humber River actually has its source on the edge of the scarp in Western Ontario though most of the watershed lies within the region of South Central Ontario. The region of South Central Ontario itself can be described in terms of its own natural sub-regions. The Humber Watershed lies astride regions whose characteristics are shared by neighbouring watersheds.



3. **CLIMATE:** The Humber Watershed falls naturally into three parts having distinctive surface form and also distinctive climate. Near Lake Ontario is a low sand plain cut by gullies. The mid-section is a clay plain sloping gradually from 400 feet to 800 feet or 900 feet above sea level. The upper part of the watershed in Albion and King Townships has a general elevation of 1,000 feet to 1,200 feet A.T. although the river drains a small area above the escarpment near Mono Mills that lies near 1,500 feet A.T. Its higher altitude and inland position combine to make it colder than the southern part of the basin.

In describing the climate of the Humber area the weather station at Toronto, the oldest in the province, will serve for the section near Lake Ontario. The figures recorded at Georgetown and Agincourt apply to the mid-section with the Malton airport station providing extra observations for the last eight years. Aurora and Alton lie at the eastern and western borders of King and Albion Townships, the Aurora station being more representative.

A figure of 42° F. is often used as the temperature which initiates growth of crops. Therefore the average temperature in April of 42° at Toronto, Agincourt and Georgetown and 40° in Aurora points to the middle of April as a general date for the start of growth.

In summer this watershed lies within a broad, uniform temperature belt extending from the southern end of Lake Huron to Ottawa or Arnprior. In autumn also it belongs to the same belt and variation within the watershed is small.

Winters are milder in the south; the Humber Bay and Lambton Mills vicinities average 22 to 23° through January while the Aurora figure of 19° is not too low for the Albion Hills. Snowfall is rather light with more of it remaining on the ground in the northern section.

In half of the seasons no severe frosts occur after May 5th near Lake Ontario while May 24th is a comparable date for Albion and King Townships. An average of 155 days without frost gives the southern section a great advantage over the upper townships with 125 days.

A total yearly precipitation of 32 inches and snowfall of 60 inches applies to the Humber area. Drouths are common, in nearly half of the years there has been summer months (May to September) with less than one inch of rain.

According to the amount of water carried off by the upper Credit River the run-off is low in this part of the province. Around 10 inches of water over the watershed goes down the Humber while the rest of the 32 inches evaporates from the surface of the ground or the leaves of plants.

4. **LAND SETTLEMENT:** The Humber Valley formed part of an overland route from Lake Ontario to Lake Huron. This trail was used by the Indians whenever it was safe to do so. Few Indians were permanently settled on the watershed as the region was exposed to raiding by the Iroquois. The first white man, Étienne Brulé, crossed the Humber Trail in 1615. By 1678 there was a Seneca village on the Humber probably at Baby Point. A sailing

vessel belonging to La Salle visited the river in 1678 and La Salle himself crossed the portage three times in the course of his journeys—once in 1680 and twice in 1681. The Senecas abandoned the region towards the end of the seventeenth century and it was gradually taken over by tribes of Ottawas; the Mississaugas settling on the Humber. The first French trading post of "Toronto", set up in 1720, was very possibly at the Humber. This post was closed in 1729. In 1750 a small stockaded post called "Fort Toronto" was built on the east bank near the mouth of the river. During the fall and winter of 1750-51, a larger and stronger fort was built just east of the Humber Watershed and given the name of Fort Rouillé. The French abandoned and burned Fort Rouille in 1759 and for more than thirty years the Humber was left to the fur traders, two of whom at least had houses there in 1788. After the founding of "York" in 1793 the centre of the "Toronto" settlement shifted east to the shores of the Bay and the opening of Yonge Street led to the disuse of the Humber Trail.

Settlement on the river was slow and scattered until after 1815, especially on the lower part, where many lots were reserved for the Government or held by absentees. In 1818 the northwest part of the watershed was opened to settlement and filled up very quickly in the next ten years. Between 1827 and 1840 most of the vacant lots on the Humber in Vaughan and King Townships were occupied. By 1857 the watershed was in general well populated and the period of settlement was over. All the townships increased in population until 1867. By 1871 the older townships (except those affected by the growth of Toronto) were declining in population. This decline continued in all townships except York and Etobicoke until 1921, when Vaughan and King began to gain in population once more. In 1941, of the townships of the Humber only York and Etobicoke had greater populations than in 1851-52.

Only three or four large villages ever existed on the Humber. Weston is the only town and Bolton and Woodbridge the only incorporated villages which are not suburbs of Toronto. The smaller villages were once very numerous but some have disappeared entirely and others are now only hamlets. Kleinburg, King, Nobleton, Palgrave and Caledon East are among the more important smaller centres. The villages of Lambton Mills and Carleton have been absorbed into the built-up area of Toronto.

The detailed study of the growth of the villages in the valley of the Humber shows clearly how much this development depended upon the improvement of communications and the spread of small scale, decentralized industry. The few settlements formed before 1830 were all mill villages. The trade of the larger villages did not depend solely on the watershed, even in early times. The Toronto market always absorbed a large proportion of the products of the Humber Valley and by 1850 there was a considerable export trade from the mouth of the river, as well as through Toronto. The existence of a city with a good harbour just beyond the watershed prevented the growth of a port at the mouth of the Humber, and eventually drew business away from the Humber towns. Nevertheless all the villages were strongly affected by the depression of 1875-1880, which was due in a great

degree to the decline in rural prosperity which began about 1870 and was accompanied by a gradual loss of rural population.

During the eighties the influence of the city tended to draw even more population away from the villages, but in the 1890's and early 1900's the larger centres began to recover. By that time this influence was taking the form of the spread of population from the city into the townships. The city has long since spread beyond the Humber. Even the more distant villages are beginning to be directly affected and in the future the story of the Humber villages is likely to become more and more directly part of the story of the city of Toronto.

Rivers were the chief source of power open to the early settlers and the Humber was an important milling stream from the first. The first mill was a government sawmill built in 1793 near the present "Old Mill". Another sawmill was started before 1800 near the site of Weston, but was burned within a few years and not rebuilt. In the meantime a grist and sawmill had been built by William Cooper on the site of Lambton Mills and the Holley family built a grist and saw mill at Weston in 1810. In 1824 there were at least thirteen mills on the Humber and its tributaries. By 1846 the number was nearly 60 and there were more than 90 mills operating in 1860. Steam mills had been introduced by 1850. The number of mills on the Humber was probably greatest about 1867-9.

Other industries using the water of the river included shingle mills, planing mills, oatmeal mills, tanneries and breweries. In the early days distilleries were attached to most of the larger grist mills.

In 1878 there were about twenty-six grist mills on the Humber, most of them water mills. The number remained about the same until after 1892. Between 1878 and 1885 the number of sawmills dropped from about 37 to about 17. The building of new sawmills between 1885 and 1892 kept the number in the watershed fairly constant. Some sawmills disappeared between 1892 and 1898 and during the first fifteen years of this century most of the others closed down. The grist mills lasted longer. Five flour mills and several chop mills were still running in 1923. In 1946 only two mills on the Humber appear in the list of flour mills and the few chop mills and sawmills still running were doing only a local business.

5. AGRICULTURE: The development of agriculture on the Humber Watershed was influenced by the proximity of the Toronto market, easy access to the St. Lawrence export route and the varied topography and soils of the region which tended to diversify the types of farming.

As elsewhere in Ontario, agricultural development falls into four phases, pioneer farming, the era of grain growing for export and the varied agriculture of the present day. The first phase was shorter on the lower part of the watershed than in less favoured regions. On the upper part it began later and lasted longer in some cases.

By the 1830's the prosperous wheat farmer was a typical figure. This phase of grain growing had usually a depleting effect on the fertility of the soil, which the earlier methods had done nothing to maintain. With some

notable exceptions most farmers practised a routine of constant grain-growing or of alternate grain and naked fallow, which encouraged erosion and put little back into the soil. The grain growing phase lasted until about 1880, barley largely replacing wheat in the 1870's. It brought much prosperity to the area in spite of temporary periods of hard times. With the opening of the West the final blow was dealt to Ontario wheat growing.

Other lines of farming had begun to be practised on the watershed long before the period of "wheating" was over. It is probable that fairly large numbers of stock were kept on some farms from about 1830 and dairy products, butcher meat, poultry, eggs and later vegetables found a ready market at "York". Sheep were important on all parts of the watershed during much of the nineteenth century as is evidenced by the development of woollen factories and carding mills. Attempts to improve the breed of stock began by 1850.. Horse breeding also began early and increased in importance as horses replaced oxen for draught purposes in the 1850's.

With the decline of grain growing, the importance of all stock breeding was increased and mixed farming became the rule and has continued up to the present with increasing local specialization. The sale of horses to the States declined after 1890, though some are still bred on the watershed. On the other hand the dairy industry has developed steadily with the growth of Toronto. It is now one of the most important sources of farm income on the Humber Watershed.

PART II—LAND

6. **GENERAL CONSIDERATIONS:** A land use survey is a detailed inventory of the physical properties of the land and of the use to which it is being put. Soil type, slope, erosion, and the major physical factors influencing its use are related to present employment of land, with the purpose of planning to the best future use. For the purpose of the survey, soils are grouped according to the materials from which they are formed. These groups are divided into series; all soils with a similar cross-section of layers from top to bottom, or profiles, are placed in the same series. According to their fertility, drainage, degree of erosion, etc., soils are also classified as to their greatest possible use, or capability, into eight classes. Remedial measures or restricted use of the less capable classes aid in the best development of soil resources.
7. **THE SOILS OF THE HUMBER WATERSHED:** The soils of the Humber region have developed under a hardwood or mixed hardwood forest and in a climate similar to the present. Their mature profiles place them in the group of gray-brown podzolic soils. The differences in soils are due to differences in glacial deposits and in this description they are grouped according to the physiographic divisions already described.

The five divisions are listed and the ten typical soil types are described in the order in which they would be found on a traverse from the northern margin to the mouth of the river.

8. **LAND USE AND SOILS ON A SAMPLE AREA COLD CREEK:** A detailed study of soils, conditions of slope and erosion and of present land use

was made on a sample area of 10,895 acres on the watershed of "Cold Creek", a small tributary which rises in Albion and King Townships and joins the main Humber below Bolton. The larger ponds and road allowances were not included in the survey. The severe conditions found in this area are representative of the problems found throughout the upper part of the watershed of the Humber.

These upstream problems of loss of water and soil erosion are closely connected with conditions of stream flow throughout the entire watershed. The solution of land use problems will add to the recreational and forest resources of the Toronto region. These two easily recognizable aspects of the study of land use in the region of which the Cold Creek area is typical are both important to farmers though the first is apt to attract more attention. If the Interlobate Moraine is to be developed as a recreational area serving the populous section of South Central Ontario between Hamilton and Oshawa, an intimate knowledge of land use in the area is necessary in order to carry out this development to the best advantage.

Four of the soil types described in Chapter 7 are found on the Cold Creek Watershed. Since the topography is comparatively rugged, horrible examples of both gully and wind erosion are seen on the slopes. Many streams which were once cold and permanent are now dry in mid-summer. Woodlots are larger and more numerous than lower down the river, much of the soil being obviously unfit for cultivation.

King Clay Loam is found on 6,144 acres or 56.5% of the area mapped. Kettleby Loam is found on 2,071 acres or 19.0%, Pontypool Sandy Loam on 617 acres of 5.7% and Brighton Sandy Loam on 995 acres or 9.1%. Depressed areas of muck soils and flood plains of the river occupy 7.5% of the area.

The conditions on Cold Creek are typical of the western part of the watershed where Pontypool Sandy Loam is found in larger quantities. King and Kettleby loams resist erosion better than Pontypool, but conditions of erosion typical of the Interlobate Moraine were found on these soils in the area.

The southern tip of the area shows an efficient agriculture for the production of whole milk and the soil here has benefitted from the use of stable manure. Most of the area is devoted to mixed farming for the production of butterfat, hogs, poultry, sheep and some beef. A few farms are in beef production. The number of sheep indicates the depletion of the pastures, as slopes are often relegated to sheep when considered no longer fit for cattle. This type of grazing frequently tends to increase erosion. The river valleys and steep slopes are in woodlot in many cases.

Some land in the area has been acquired for recreational purposes by individuals or organized groups from Toronto. Some of these are doing good work in reforestation and otherwise developing the resources of their land. Others are content to continue the old methods while some are neglecting the land and unintentionally increasing the problems of conservation.

Changes of ownership have been more frequent of late though three families have been more than a century on their holdings. In the better stretches the 100-acre farm is the rule, but on more rugged areas 300-acre holdings are found. Kettle ponds are common and sometimes form the chief water supply. Some holdings are entirely in pasture. The soil types, degree of erosion, natural surface water and drainage, and land use are recorded on the map which accompanies the report.

9. THE RELATIONS OF SOIL TYPE, EROSION AND LAND USE ON THE COLD CREEK WATERSHED: The soils of this area are agriculturally productive with good management but on the slopes they are susceptible to erosion when cultivated. On only 9.1% of the sample area was there no apparent erosion. Slight erosion had taken place more than 50% of the area. Severe erosion, involving the loss of one-third to two-thirds of the subsoil as well as all the top soil was found on 17.8% of the area.

All four of the soil types found in the area occurred to a great extent on rolling topography with irregular and steep slopes and are in consequence liable to erosion. Nearly seventy per cent of the land is under cultivation, less than 20% is under permanent pasture and only 11% is under permanent forest cover, a low figure for a source region of this kind. Of the King Clay Loam 76.6% is cultivated and 70% of Brighton Sandy Loam and Kettleby Loam. Only a small part of the Pontypool Sandy Loam is worked a very large part being under permanent pasture and only 9% under permanent forest cover.

There has been severe erosion on one-third of the Pontypool Sandy Loam, one-fifth of the King Clay Loam (including many gulleys) and one-quarter of the Brighton Sandy Loam, where the severe water erosion has induced serious wind erosion. Erosion was found in some considerable degree on all slopes of 5% or over. Slopes of over 20% have lost their capacity for agriculture. Slopes from 5% to 20% are moderately eroded and have lost much of their value for cropping but can be made to support fair to good pasture under good management.

Under present land use severe erosion has occurred not only on land now under crop but also land now under permanent pasture or woodlot. On the better soils much land once cultivated has been retired to woodland or pasture and the erosion has occurred while the land was in cultivation. On the Pontypool Sandy Loam in this area, the severe erosion of the pastures may be due to over pasturing by sheep.

10. RESULTS OF THE SURVEY: The land on the Cold Creek Area was classified by the survey according to its capabilities into the following eight classes:

Land Class I. Land which can be used for agriculture without restrictions or special conservation practices. Only 1.6% of the sample area is in this class. In this class the area is very far from being typical of the whole watershed, since it was chosen as representative of areas where soil and water conditions were severe.

Land Class II. Land which requires erosion control or artificial drainage to bring it up to Class I. This class includes 19.6% of the area. Nearly 75% of this class in the area is under continued cultivation.

Land Class III. Land requiring intensive conservation practices to prevent deterioration. There are 402 acres of the class of land on the area on which systematic conservation practices might be adopted.

Land Class IV. Land suitable for cultivation with restricted use and conservation methods. There are 2,577 acres of this land or 23.6% of the area. This land requires long rotations to provide nearly permanent cover to protect it from erosion, and conservation practices when re-seeded.

Land Class V. This class includes all the muck and bottom lands in the area. These amounted to 826 acres and require no special practices being almost all in permanent pasture or woodlot.

Land Class VI. Land seriously eroded and liable to severe erosion. This class requires permanent cover and severe restriction of use. This class covers 30% of the sample area and unfortunately most of it is still under cultivation.

Land Class VII. Land very severely eroded which should be under permanent woods. Care should be taken in planting and future cutting to avoid practices liable to lead to further erosion. This class amounts to 1,453 acres, 907 being now under cultivation and only 115 in woodlot.

The strict application of this classification shows that only one-fourth of the land in the sample area is fit for continued cultivation with conservation practices, one-fourth for permanent pasture and the rest for reforestation. At present 68.3% is cultivated, 18.9% under pasture and 11% in woodlot.

The proofs of the maladjustment of present land use to the land capability can be seen in the increased size of holdings, the putting of whole farms into pasture, in loss of water resources and in obvious and increasing erosion.

11. **PLANNED LAND USE:** The studies of the sample area show a maladjustment of present land use which can be corrected. Three methods of correction are discussed—reforestation, permanent pasture and conservation farming.

Reforestation is discussed from the point of view of the individual farmer. It is recommended on all Class VI and Class VII land, and also on much of the muck and some bottom land included in Class V. The importance of keeping cattle out of woodlots is emphasized.

Pasture is strongly recommended as suitable cover for much Class IV land where irregular topography makes contour farming difficult. The management of such pastures and suitable seed mixtures are discussed. The establishment of a zone of pasture in connection with any large reforestation scheme is suggested and the possibilities of doing so discussed. Such a zone would occupy the parts of properties purchased for planting which did not require to be reforested. Besides providing a useful area of pasture

*Humber Valley
Drive Park.*



Kelly Lake.



Milldam at Palgrave.





*Plantable
Land.*



*White Pine Stump Fences
on the Upper Watershed.*



*Wind
and Water
Erosion in
King
Township.*

*Mennonite
Meetinghouse,
before 1825.*



*Stock Barn near
Edgley, about 1830.*





Most of the Humber watershed was originally covered with sugar maple-beech forest of this type, but few woodlots have been maintained in as good condition as this one near Hammettown.



*Above—Humber in
Flood, 1947.*



*Right—The West
Branch, Summer
of 1942.*

*Market Gardens on
the Main Humber,
April, 1947.*





*Fence-corner Cover
for Wildlife.*



*"Clean" Fences give
no cover.*



*Pollution—Rubbish dumped
in the Humber above
Lambton.*



Above—Panorama of proposed Reservoir near Nashville.



Right—Proposed Damsite at Cedar Mills.



Damsite on Lindsay Creek.

Cold Creek—A possible Storage Area.





*Typical Crowded Conditions
in Recreation Areas on the
Humber.*

under proper management where grazing could be rented owners of stock, it would also provide slopes for skiing such as are now only to be found on golf courses. The provision of water supply for grazing lands is a problem in such areas as that studied. The proper care of the sources available is outlined and suggestions made for increasing the supply.

Conservation farming is recommended on Class II and Class III land (23% of the Cold Creek Area). Some conservation methods should also be applied to Class IV, VI and VII land when cultivated and planted to permanent cover. The methods discussed include the use of green manure, restricted rotations, contour ploughing, strip cropping, diversion ditches, grassed waterways, farm planning and co-operative watershed planning.

PART III—FORESTS

12. THE FOREST: The original forest on the Humber was predominantly hardwood, including sugar maple and beech as the dominant species, with basswood, white elm, white ash, and silver maple as associates, and some red, white and bur oaks and yellow birch. Groups of white pine occurred on well-drained soils and white pine and hemlock grew on the slopes of the ravines. White pine and hemlock also grew as scattered trees throughout the hardwood stands. The swamps on level land were occupied by white elm and silver maple for the most part, while the muck areas were covered with white cedar, either pure or mixed with other hardwoods found on wet land. The progress in clearing land was the same as generally practised throughout other parts of Southern Ontario, much of the timber being used for building roads and other purposes. As there was practically no market for timber in the days of early settlement, much valuable lumber was sacrificed, but this was necessary to provide fields for agriculture.

Unfortunately, however, the destruction of the forest did not stop with pioneer days, but has continued until recent times, and by 1910 more than 90 per cent of the area had been cleared, or 7.9 per cent and 9.4 per cent of woodland for Peel and York Counties respectively.

Early forest products included such items as ships' masts, squared timber, sawmill material, staves for cooperage, and the usual supply of lumber for numerous planing mills. By 1851 there were 45 sawmills operating on the Humber River. Much material was also used for fuel, ties, road building, fencing, wooden implements and vehicles. Potash was a by-product of pioneer days, and maple sugar was produced in the area, reaching an all-time high in York County of 194,762 pounds in 1860 and dropping to 1,092 pounds in 1940.

13. PRESENT WOODLAND CONDITIONS: The Forestry survey on the Humber watershed included an inspection of each piece of woodland two acres or more in size, totalling 2,186 individual woodlots. On the forests standing in the area to-day 63.5 per cent is classified as pure hardwoods, 20.2 per cent as mixed woods and 16.3 per cent as pure conifers. As is the case in most parts of Southern Ontario, the farm woodlot is used as a source

of pasture, and the survey indicates that 69.0 per cent of all the woodlots in the area are used to some extent for grazing. There is very little burning of woodlots in recent years, but the practice of clean-cutting for cordwood is still in practice.

14. **FOREST CONSERVATION MEASURES IN PROGRESS:** Considerable planting has been done in the area by private individuals, particularly pine on the poorer sites and hardwoods for supplementing existing woodlots. The extensive York County Forest near Vivian lies outside the Humber watershed, so that the only county forest within the area is that owned by the County of Peel, consisting of 50 acres of land on which 70,000 trees have been planted. The smaller municipalities have not taken advantage of the free distribution of trees for demonstration or municipal woodlots, and no such areas exist on the watershed. Some small demonstration plantations have been carried out, notably the attractive area in the Village of Woodbridge surrounding the memorial of the First Great War. Many schools have taken advantage of the offer of the Department of Lands and Forests to supply trees for home planting, and for the last ten-year period approximately 300,000 trees have been used for this purpose.
15. **FOREST CONSERVATION MEASURES REQUIRED:** The most important conservation measure required in the Humber watershed is the establishing of a forest which would be centred in the northern half of Albion Township, or what is known as the interlobate moraine—mostly land of low agricultural worth. The area included in this proposed forest is approximately 23,700 acres, much of which is plantable land and woodland with here and there farms of low productive value. Unfortunately, within the Humber watershed the sand and gravel areas do not occur in a large solid block but are separated by clays and clay-loams on which good farms are established. Furthermore, many of the submarginal farms have been purchased by city dwellers either for summer homes or for speculative purposes. Some of these have been partly reforested with the object of producing Christmas trees or timber. This means that it will be impossible to establish a large contiguous forest area, but rather a number of smaller areas grouped generally in the same part of the watershed, forming a forest of very considerable extent. Besides including the poorest land on the watershed, the areas recommended for reforestation and a permanent forest constitute the important source areas of the headwaters of the main branch of the Humber, and therefore would serve a multiple use purpose, including the production of timber, the protection of the headwaters of the river and recreation.
16. **LAND ACQUISITION:** One difficulty in establishing large areas of forest is the acquiring of land. Where the counties of Southern Ontario have undertaken a large scale reforestation programme, practically all their purchases have been made by private sale, which, of course, is the most satisfactory method to follow, and for the most part this should be the practice adopted as and when the Humber Valley Conservation Authority undertakes such a programme. Some land may be acquired through tax-delinquency, and as a last resort, especially in establishing a unified block, it might be necessary to expropriate.

A table in this section of the report shows the cost per acre of lands purchased for reforestation in Southern Ontario, by different counties, ranging from \$1.85 per acre to \$17.93 per acre paid by the County of York for its property in the vicinity of Vivian.

PART IV—WATER

17. **GROUND WATER:** The question of ground water is discussed and it is pointed out that no consideration of river valley development or of conservation or of re-development of agricultural areas could be adequate or in any way complete without some mention of that water which occurs beneath the surface of the earth, and in particular of that part of the sub-surface water that is within the zone of saturation, namely the ground water. For it is this water that is primarily responsible for the continued flow of surface streams that supply to a very great extent our domestic and industrial needs. The problem of ground water is discussed in a general way, as no specific studies of this type were made while the survey was in progress. However, reference is made to a special survey which was conducted in 1945 by the Department of Planning and Development in which general ground water conditions in the Counties of York, Peel, Simcoe and Dufferin are set forth.
18. **THE RIVER:** The Humber River drains 336.77 square miles of the north shore of Lake Ontario. The sources of the main river and the east branch are both on the morainic ridge of hills which occurs in the northern part of York County. The East Branch rises near Wilcox Lake, just east of Yonge Street, 22 miles north of Toronto. The Main Branch has its source near Mono Mills, about 29 miles west of Wilcox Lake. The West Branch drains a large section of the fertile Peel Plain, drawing its waters from a number of sources scattered along the edge of the moraine between the Village of Bolton and Claude, a crossroads hamlet 11 miles south of Mono Mills. The West Branch joins the main river near Thistletown, about 9 miles from Lake Ontario. The East Branch, after flowing westward for ten miles from its source, flows south for nearly the same distance before it joins the main river at Woodbridge. At Kleinburg these two streams are less than half a mile apart, separated only by a high narrow ridge.

The river drops over 1,200 feet in the 58 miles of its course, and more than half of this fall occurs in the first eight miles.

Low summer flow has probably always been a problem on the Humber though certainly not to the extent that is now the case. Records indicate that there have been periods of flooding on the Humber for many years, and little water in the main channel at certain periods of midsummer. At present, however, in certain years, many parts of the river dry up completely and in others the flow is extremely small. This lack of summer flow has a direct bearing on recreational facilities, and in a general way on the health of the municipalities and others using the river along its course.

Encroachments on the Humber have not been as serious as on some other rivers in Southern Ontario. Settlements in some cases have been built in

the flood channel, but no serious loss has been incurred due to this. Encroachments are most evident on the outskirts of the City of Toronto, particularly in the Black Creek area, and along Scarlett Road and near Thistleton. Such encroachments are likely to increase as time goes on, unless restrictions are introduced to control it. This is very necessary, because there is always a possibility that a severe flood such as occurred in 1850 might occur again, and do considerable damage in the natural flood channel of the river.

19. FLOODS ON THE HUMBER: There can be little doubt that the Humber, like all the rivers and creeks of Southern Ontario, has risen in flood under certain climatic conditions throughout its history as a river. To the early inhabitants of the region the spring and autumn freshets were an inevitable phenomenon and brought with them advantages as well as inconveniences. The yearly enrichment of the meadows or "flats" made it possible to grow corn on them year after year, so that Indian villages near the river could remain on the same site for long periods, instead of having to be shifted at short intervals, when the fields around them became exhausted. The muddy flood waters might sometimes spoil the salmon fishing and the freshets would make the fords impassable without a canoe, but the high water permitted the running of the many rapids, which usually made navigation of the Humber, above the "Old Mill", too laborious to be worth attempting. The "flash" floods which occurred in summer and early fall were another matter. This type of flood was possibly less frequent and less severe before the forests had been cleared on most of the watershed. However, such sudden spates did occur in early days, destroying the crops of corn on the flats and sometimes surprising the Indians in their encampments.

On the whole, the Humber floods caused little inconvenience to the Indians, missionaries, fur-traders and soldiers, who were the only inhabitants of the "Toronto" region until the coming of the British colonists in 1792. The fact that no references to flooding on the Humber have been found in the records of the French Regime, cannot be taken as indicating that the river never rose until the British had built mill dams across it. References to flood damage occur within a few years of the building of the first sawmill on the Humber, when there had been no change in the conditions on the watershed.

In 1798, when the King's Sawmill had been running for only five years, there is a reference to the "risque" to the frame from the spring floods as one of the factors to be allowed for in tendering for the lease. This seems to imply regular flooding and indicates that the Humber, like the Thames, had risen frequently during the 1790's. From that time on the millers on the Humber are found to be in constant trouble with their mill dams. From this early record down through the years floods occurred spasmodically but as there was little settlement on the river and especially in the flood channel no great damage was done. Moreover the means of recording floods chiefly by newspapers was lacking during this period. In April, 1850, however, a severe flood occurred which was recorded in detail in the *Toronto Globe*. Bridges and mills were destroyed and nearly every dam on the river was carried away wholly or in part. The water rose to twenty feet at Lambton. Again in 1857 which was a year of bad flooding in Canada West, much damage

was done on the Humber. No floods as severe as those in the 1850's occurred during the sixties but in September, 1878, another severe flood occurred which was even more damaging. From this period to the present, minor floods and freshets occurred at different times of the year but do not seem to have caused as much damage as the earlier ones.

It is clear from this account of some of the past floods on the Humber that flood damage has been, on the whole, a less serious problem than was the case on some Ontario rivers. Though the river has always overflowed its banks at frequent intervals and heavy floods have taken place from time to time, the formation of the valleys limited the effects to comparatively small areas. Until recently there was no large town or city on the river and after 1850 only part of two villages were much exposed to flooding. Very little agricultural land was exposed. Farm buildings rarely had to be built on low ground, so that the spring floods caused less trouble than was the case elsewhere. It was always the sudden summer "spate" that was disastrous to farmers as well as townsmen.

20. THE PROBLEM AND ITS SOLUTION: Water control has been practised for centuries throughout the world. Irrigation and drainage were attempted early in history while water supply was a highly developed science in early Rome. Waterpower made its appearance later, first in the form of crude waterwheels supplying grist and flour mills, then developing rapidly until to-day we see magnificent power dams impounding huge man-made lakes and supplying power sufficient to meet the needs of our highly industrialized cities.

Flood control played a minor role in history, perhaps because the necessity for it was not great. Land was plentiful enough so that the well-defined flood plains were avoided by settlers and little damage was done by seasonal floods. But in the last century man has stripped the watersheds of their natural growth, has cultivated the fields and, worst of all, has encroached upon the flood plains, building his cities at the mouths of rivers and cultivating the fertile floors of the lowlands. For the advantage of this encroachment men must pay by designing expensive flood control works.

Fortunately, conservationists are advocating measures that will tend to correct this situation. In the past the common idea of flood control was the construction of a large dam above the city that was to be protected. This served as a protection but did little to correct the situation causing excessive floods. The trend to-day is towards the retention of flood waters on the headwaters of the river by a large number of smaller dams, ranging in size from the moderate size structure and reservoir down through crude dams in gullies on farmland to the simple furrow of contour ploughing. Reforestation and planting in strategic locations will add to the effect of these dams in slowing down the water as it makes its way to the river so that more will be used to recharge the groundwater and provide needed water for the roots of vegetation. A plan such as this will prevent erosion and silting in the rivers as well as reducing floods by the equalization of flow throughout the year.



DAMS AND STORAGE BASINS

SCALE : MILES



FIG 3

Rivers which are subject to severe seasonal floods and which approach the dry stage in summer need control designed to reduce floods and increase the summer flow. This requires a dual purpose dam with controlled outlets, capable of impounding water during floods and releasing it gradually during periods of low flow. These dams must be larger than the previous type for the same amount of flood protection because of the possibility that floods may occur before the reservoir is completely empty.

When the storage reservoir is of sufficient capacity that it need never be lowered below a certain elevation a permanent lake is formed which may have recreational value. In this way flood control, low flow augmentation and conservation may be combined with a real addition to the natural beauty of the community. In Southern Ontario where small recreational lakes are rare this plan has great attraction.

21. **SMALL DAMS:** When trees and vegetation are removed from a drainage basin and the land intensively ploughed and cultivated, rainfall and melting snow can find its way quickly into gullies and valleys and thence into the river channel. There is nothing to hold back this water until it can soak into the ground and find its way to the water table. An intensive storm under these conditions must result in a rapid increase in the volume of water reaching the streams. The more denuded the land and the steeper the slope the more rapid is the rise in river discharge.

The remedy would appear to lie in the prevention of such rapid run-off from the slopes into the streams. Any method of doing this, no matter how cheap or insignificant it might appear, is an instrument of conservation and flood control. Some of these methods are:

- (1) Reforestation and strategic planting.
- (2) Contour ploughing.
- (3) Small conservation dams.
- (4) Large dams.

Most important perhaps of these methods is the building of small dams. By small dams is meant those that can be built cheaply by individuals or small groups. These dams may be located in erosion gullies or in small streams near the headwaters and play an important part in any flood control and conservation scheme. The cheapest and crudest of these consist of logs, brush and rocks piled in the channel and anchored to prevent removal during floods. Other more elaborate structures may be built of timber weighted down with rock or of compacted earth with provision made for spilling water during a flood. Such structures as these may be used to impound water in the spring and let it out gradually during the summer to augment the low normal flow or may be used for livestock throughout the season.

Large dams are expensive and have their place only on larger rivers where flood damage is very costly. They serve the same purposes as the smaller ones, but to a greater extent.

The provision on the Humber Watershed of numerous small, cheap dams and some larger dams of the type shown would provide great benefits to all within its boundaries. Flooding would be reduced considerably while

summer flow would be increased materially, and the ground water level would rise. When this is done in conjunction with other control measures on the high lands of the watershed, a new era of well-being will commence for the plant life, wild-life and people of the Humber Watershed.

22. **HYDRAULICS.** In addition to conservation methods already advocated such as reforestation, conservation farming and the building of many little dams it is recommended that six medium sized dams be built at strategic sites on the river. These sites for the sake of convenience have been designated Claireville, Lindsay Creek, Stanley Mills, Nashville, Cedar Mills and Kleinburg. These six dams would provide 13,389 acre feet of storage which is considered sufficient to prevent floods on the Humber including one which might occur once in a hundred years. In recommending these dams, however, the important factor of summer flow has been considered and one or more of these would be for this purpose, thereby providing more water in the river during the summer, which is so necessary for agriculture, the many recreation areas which border on the river and for the general scenic beauty of the valley.

Three of these dams could be started in the near future in the following order: Nashville, Claireville and Cedar Mills. It is realized that the construction of all of the proposed dams could only be undertaken as a long range programme. This is true of all conservation schemes. It has taken one hundred and fifty years to bring the watershed to its present condition, consequently it will take many years to restore the natural conditions which have been lost.

PART V—WILDLIFE

23. **WILDLIFE:** There are two objectives in planning for wildlife in Southern Ontario. The first is to retain for the average citizen the opportunity to see and enjoy the varied forms of birds, mammals and other wildlife indigenous to the region concerned in the greater possible variety. The second is to retain for the average citizen the opportunity to hunt and fish, within the law, in an attractive environment, and, where possible, to trap fur for profit. These objectives must be adapted so that they have no adverse effect on farming practices. An abundance of songbirds, game, fur-bearing animals and other wildlife will, in fact, make a farm more valuable and farm life more enjoyable. They help to protect crops against insect pests and add to the beauty of the farm itself. The control of harmful species and the maintenance of all other animal populations at a desirable level through the provision of a good habitat is a natural branch of good land management. Many other techniques of wildlife management are significant, such as the introduction of new species where needed, and restrictions of the daily and seasonal kills. But for the purposes of this report the basic assumption is made that the provision of suitable habitats is at present the chief problem in the management of wildlife on the Humber Watershed.

This chapter deals with former conditions in the area and mentions some of the species which were present in earlier days such as the passenger pigeon, beaver, marten, Canada lynx, black bear, wolves, wild turkey, white-tailed deer and two species of rattlesnakes.

The Humber River was once famous as a salmon stream. The Honourable D. W. Smyth wrote in 1799: "The Humber abounds in fish, especially salmon. At one time land was frequently paid for in salmon. "Fish were caught, salted, barrelled and sent down the St. Lawrence and the proceeds applied to the purchase." Spearing by torchlight was the usual method of catching salmon. The large numbers of salmon may be gauged from a statement of Paul Kane, "In my boyish days I have seen as many as a hundred light-jacks gliding about the Bay of Toronto, and have joined in the sport."

By the seventies very few salmon were being caught and the last date given for the occurrence of salmon in Lake Ontario is 1895.

There is little mention of other species of fish in the early literature of the Humber, but there can be no doubt that speckled trout were common in the upper watershed and both small and large-mouthed bass in the warmer sections.

This chapter also includes a complete check list of mammals, birds, amphibians and reptiles.

In reviewing the present status of wildlife in the watershed, one basic assumption is made. This assumption is that any area of agricultural or wooded land in Southern Ontario should produce both an annual crop of game and fur and a permanent population of the more interesting forms of wildlife.

The term wildlife, as used here, includes only the undomesticated vertebrate animals. The chief, though not all, requirements for existence of these animals are cover, food and water. These requirements vary greatly with each species. The Ring-necked Pheasant, for example, thrives in cultivated lands with long grasses, brushy fences and some trees. The Ruffed Grouse requires uneven aged woods with access to cedar or willow swamps. The range of the Red Fox overlaps both these cover types. The varied requirements of different species have until recently received little attention in wildlife management. The methods actually used in attempting to deal with the decline of game and other wildlife since early settlement have been the traditional ones of restrictions on shooting, predator control, the setting up of reservations, and artificial stocking. None of these methods had much chance of success without the provision of a proper habitat for the species concerned. The control of the habitat or environment is thus a more important part of wildlife management than direct control of the animal itself. Hence the most important management tool is vegetation.

The pheasant situation in the watershed may be summarized as follows. The climate inhibits success of wild pheasants in the upper part of the watershed. The shortage of wild birds in the southern sectors is due to occasional deep snows which covers food patches, to clear farm land, to some unknown disease factor, and to the amount of poaching which is inevitable near Toronto.

Reports indicate that grouse is more numerous than it was in 1945.

Other game birds in smaller quantities include the woodcock, Wilson's snipe and Hungarian partridge. The watershed in the present conditions provides little duck shooting. White-tailed deer still visit the area. The jackrabbit, cottontail and Red Fox are plentiful. Varying hare are scarce while mink and raccoon are probably plentiful as well as the skunk.

The muskrat is a species about which general statements are apt to be misleading, since little is definitely known about its life history, populations, or requirements in the habitat available in the Humber watershed. It is certainly distributed throughout the permanent waters of the watershed wherever aquatic plant are available. It is probable that except where strict control of trapping is maintained, the muskrats have been severely over-trapped in the last three years, while the value of the fur has been so high. Muskrats on rivers such as the Humber are not easy to census, since the fluctuating water levels force many of them to burrow sloping tunnels in the steep banks of the river instead of spending the winter and spring in their houses in the marshes.

Species which are of significance to agriculture and forestry include the crow, starling, groundhog, European hare, white-tailed deer, cottontail and two species of mice. The American crow is generally considered a serious pest in the watershed. The food of this species includes enormous numbers of insects, and extensive investigation by the United States Biological Survey has shown that, at least in that country, it does about as much good as harm in an agricultural community. All authorities agree that the starling is a damaging species, but there is at present no efficient and cheap method of control. The groundhog, European hare and cottontail are frequently and rightly condemned, but the fact is that few farmers bother to shoot these species although this is a simple solution. The greatest damage from deer comes to root crops, but no reports were made during the summer's survey indicating that deer are a serious problem in the watershed. The two species of mice concerned are the deer mouse and the meadow mouse. The two species are amongst the most prolific of Ontario mammals. Special attention was given to the study and census of mice and recommendations are set forth for their control.

Some of the spectacular birds which nest in the watershed are the green heron, American bittern, black tern, black duck, great horned owl and the pileated woodpecker.

Methods of improving the area for desirable wildlife are set forth in detail, such as food and cover patches, wildlife ponds with suitable plant foods and the stocking of suitable areas with fish.

The report also recommends the establishing of a number of refuge areas which are essential if certain interesting species are to be retained and for a continuous supply of game and fur.

24. **BIOLOGY AND FISH OF THE RIVER:** The river was visited during June and July of 1946 at approximately 140 places. These places correspond generally to the crossing of the river by roads. Data concerning the surrounding country and the conditions in the water were recorded at each, together

with further data on the weather conditions. The notes made on the surrounding country at each place included such topographical features as hills, plains, the dimensions of the valley, and records of erosion of the land either as sheet erosion of the hillsides, as cattle erosion or as bank erosion caused by the stream itself. A description of the tree cover including that of the banks was made to relate this data to the results of the forestry survey and forest cover as shown by the aerial and topographical maps. Characteristics of the stream itself were noted including rate and volume of flow, turbidity, temperature, type of bottom, amount of silt deposited, vegetation and cover for fish. At all stations which were not dried up at the time of the visit collections of the aquatic insects and other invertebrates were made from rapid and quieter water. From 93 of the stations, collections of fish were made with seines, minnow traps and, in a few places, gill nets. From this data a map was prepared which shows the following characteristics of the river—dries up completely, dries up to standing pools, areas of permanent flow suitable for speckled trout, permanent flow but unsuitable for speckled trout, permanent flow but warm and polluted water. Twenty-nine species of fish were recorded including game fish such as eastern speckled trout, brown-trout, largemouth bass, rock bass, pumpkin seed, bluegill, common white sucker, brown bullhead, yellow perch and carp.

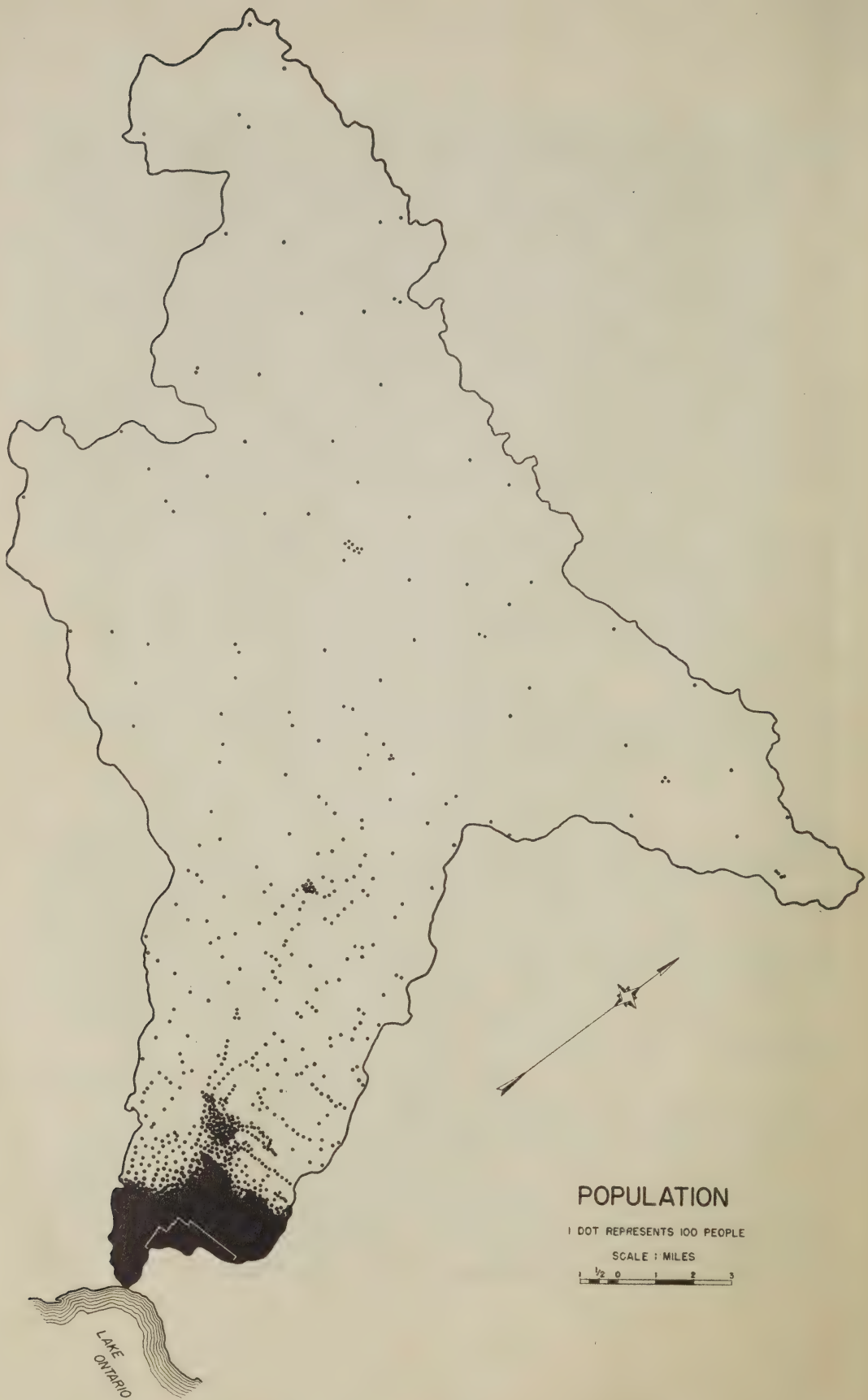
The deficiencies in the river are set forth in detail and recommendation for modifying the stream conditions for fish in each of four distinct areas are described.

25. LAKES AND PONDS OF THE WATERSHED: Besides reporting on the river and its branches seven important lakes in the area were examined and the species of fish present reported on.

PART V—RECREATION

26. GENERAL CONSIDERATIONS: The planning of recreational facilities in Ontario has in the past been chiefly directed towards two ends: facilities such as parks and playgrounds within the boundaries of cities and towns, and facilities for long and comparatively expensive vacations in wilderness regions relatively far from the industrial and agricultural areas of the province. The growing concentration of the population in industrial areas has over-taxed the local facilities, while the time and cost involved in reaching wilderness areas have prevented the average family or group from visiting such areas more than once or twice a year.

It is now well recognized that a third type of facility has been neglected, namely the public area within a few miles of the agricultural or urban worker's home. This lack of good recreational facilities close to the cities has been an obstacle to the enjoyment of healthy out-of-door activities and relaxation. This report has, therefore, two objectives. The first of these is to recommend the improvement of existing public recreation areas. The second is to recommend the acquisition and development of new public recreation areas outside the towns and cities in the Humber watershed. Stress has been laid on certain of the more essential needs and three points have been kept in view:



POPULATION

1 DOT REPRESENTS 100 PEOPLE

SCALE : MILES



- (1) The retaining and protection of natural advantages.
- (2) The development of adequate facilities in maximum variety available to all people, no matter what their age, occupation or income may be.
- (3) The adjustment of recreation plans to any conservation measures envisioned by the proposed Humber Watershed Conservation Authority.

The Humber Watershed because of its diversified terrain lends itself to most forms of recreation. Much of the valley is fringed with trees providing areas for parks and other facilities; the northern hills provide rugged country for hiking and camping and winter sports while the eleven lakes which dot the area have recreational possibilities that larger bodies of water provide.

The present population of the Humber Watershed plus the metropolitan area of Toronto is well over a million people. To this must be added many thousand more who come into the area during the summer from other parts of Canada and the United States. In 1947 York and Peel Counties alone had more than 150,000 licensed passenger cars or a carrying capacity in cars alone of more than 450,000 persons.

Obviously all these people do not or could not use the present or proposed recreational facilities on the Humber, but is an indication of how many more of our citizens might use the area for recreation if more facilities were available. A further indication of this is that on a Sunday afternoon 1,500 people crowd into one seven-acre park, which represents a density of 214 persons to the acre.

27. **RECREATIONAL FACILITIES ON THE HUMBER:** The present recreational facilities on the Humber were carefully examined. Of those visited thirty are reported on in detail.

The six picnic grounds listed, namely Brulé, Magwood, Lambton, Humber Valley Drive, Cruickshank and Pelmo are essentially urban areas. While they serve their purpose in so far as their facilities permit, they are too close to the urban centres of the watershed to furnish that element of adventure which is provided by a short journey by car or bus to a more natural setting supplying woodland, stream and the open countryside.

Two parks, namely Riverbend and Taffy Hollow, while having potential value, are either neglected or so small that their worth for large groups is greatly minimized.

The two parks, namely Elm and Fundale, which approach the ideal requirements of a rural park referred to sometimes as a multiple use area, are so hopelessly crowded on weekends that the enjoyment of those seeking recreation is considerably lessened. The fact that 3,400 people crowd these properties on a good Sunday is surely an indication that more and better planned parks of this type are required.

The two lakes which still remain open in part to the public, and especially Wilcox Lake, are used to capacity, indicating again how people are attracted to a body of water, no matter how small, for their recreation.

The Humber Valley is well supplied with golf courses. These are six in number which occupy 1,400 acres of rolling terrain, much of which lies in the valley of the main river or its tributaries. Three of these courses may be considered semi-private and permit playing by the day, while the other three require full-time membership. The fact that approximately 40,000 people use these properties in a season is an indication of how the Humber Valley is supplying recreation of this sort.

Riding is provided for by two ranches, and both are well patronized, the number of people enjoying this healthful sport being over 8,000 during the season.

Many churches, service clubs and welfare groups have taken advantage of the scenic beauty of the Humber to purchase permanent camp sites. This phase of recreation is well taken care of and some of the camps are excellent in their facilities.

The seven camp grounds used by these groups occupy some 600 acres on the watershed. Four thousand, nine hundred children and 700 adults used these areas during the 1947 summer period. All camps, with one notable exception, use the main Humber River or its tributaries for all swimming and water activities.

For some reason tourist camps have not developed in the valley and, as indicated, only one at Bell's Lake is conducted at the present time.

With the exception of Wilcox Lake cottage sites have not been built up to any great degree, due no doubt to the lack of suitable available river frontage and lakes of sufficient size. On the other hand many private estates have been established, usually with river frontage or on the few kettle lakes which are at the north part of the watershed.

If the Humber Valley lacks anything to increase its value for recreation it is sufficient flow in the river during midsummer. All present owners of properties, both private and those opened to the public, appreciate the value of trees. Woodland is protected and reforestation is carried on, but land owners can do nothing individually about summer flow. Elsewhere in this report recommendations are offered which if carried out should increase the summer flow of the river, thereby providing better and more swimming facilities which at the present time are seriously lacking.

28. PROPOSED RECREATIONAL FACILITIES ON THE HUMBER: The survey made clear two points. The first of these is that more than fifty per cent of those using recreation areas in the watershed apparently preferred to congregate at beaches, and picnic grounds rather than to seek more intimate contact with nature. This presents the problem of grouping people in close but not crowded proximity. It also shows the necessity of establishing in any proposed park a focus or service area at which people naturally congregate and from which they can seek quiet areas if they wish to do so.

The second point clarified by the survey was the order of preference of recreation types. Swimming and picnicking were the most popular activities. These were followed by golf, formal and informal games, riding and nature

study. No study was made of the intensity of fishing, hunting and winter sports. The opportunities for these are now limited in the watershed and there is almost no opportunity for boating other than at the Humber mouth.

To overcome the present and growing shortage of recreation areas in the watershed two well integrated steps are needed. The first is the immediate implementing of the Inner Green Belt Plan. The second is the initiation of a long range plan for the acquisition and development of two kinds of recreation areas in the rural part of the watershed; large scale Multiple Use Areas in which a large number of facilities can be combined in one property controlled by the Authority, and smaller individual picnic sites and Roadside Parks in suitable areas.

Six planned Multiple Use Areas are shown on the Recreation Map and on individual drawings. They have a total acreage of 4,090 acres or $1\frac{1}{2}\%$ of the total acreage of land in the watershed. None of them lies in land of the highest agricultural value. Four of the six include slopes and flood plains of the main Humber River. The other two lie in upland areas of woods, lakes and steep hills where most of the land is of only marginal use for crops.

Nearly eleven miles of river and stream and some twenty-five acres of lake and pond surface are included in these parks. There are already approximately 1,000,000 people living within a radius of twenty-five miles of all of them.

It is not suggested that the Conservation Authority should necessarily acquire and fully develop all these parks at once, but since there is clearly an urgent need for public recreation areas the Authority could select and develop several of them immediately and consider the remainder in the light of experience with those already set up.

These parks are as follows:

1. River Bend Park, 330 acres, about one mile south of Woodbridge.
2. Elder Mills Park, 765 acres.
3. Kleinburg Park, 635 acres.
4. Caledon Park, 680 acres, including Innis and Widgett Lakes.
5. Bolton Park, 510 acres.
6. Coventry Park, 1,070 acres.

In addition to the six multiple-use areas listed above the report also recommends a large number of small parks suitable for family groups at attractive places on the area.

The need of scenic drives in the area is indicated but as the building and maintenance of such roads requires cooperative planning on a large scale and involving the assistance of many departments responsible for the roads of the area, this subject has not been explored in detail.

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